

Notice of Allowability

Application No.

10/090,834

Applicant(s)

HSIA ET AL.

Examiner

Art Unit

Grigory Gurshman

2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 11/29/2005.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-10 are allowed.
2. The following is an examiner's statement of reasons for allowance:
 - 2.1 The rejection of claim 2 under 35 USC § 112 has been overcome by the Applicant's amendment of the instant claim.
 - 2.2 Referring to claims 1, 3 and 6-10 Manjunath discloses a method for embedding and extracting digital data in images and video (see abstract and Fig.15). Manjunath teaches that the method employs a discrete wavelet transform for embedding gray scale images, which can be as great as 25% of the host image data. A simple control parameter is used that can be tailored to either hiding or watermarking purposes, and is robust to operations such as JPEG compression. The method also uses noise-resilient channel codes based on multidimensional lattices which can provide for embedding signature data such as gray-scale or color images. Furthermore, embedded image data can be recovered in the absence of the original host image by inserting the data into the host image in the DCT domain by encoding the signature DCT coefficients using a lattice coding scheme before embedding, checking each block of host DCT coefficients for its texture content, and appropriately inserting the signature codes depending on a local texture measure. The method further provides for source coding the signature data by vector quantization, where the indices are embedded in the host by perturbing it using orthogonal transform domain vector perturbations. The transform coefficients of

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the parent data are grouped into vectors, and the vectors are perturbed using noise-resilient channel codes derived from multidimensional lattices. The perturbations are constrained by a maximum allowable mean-squared error that can be introduced in the host (see abstract).

2.2. The claimed invention is directed to a watermark embedding process using sub-band filtering. The data of the entire image is split into $N \times N$ blocks and then is transformed into a frequency domain with N being greater than 1, and HH band with $N/2 \times N/2$ coefficients is tested on a high frequency feature. Then, a full watermark image data is transformed into the frequency domain. LL band coefficients of the watermark image data are then quantized and inserted into a block of HH band having the tested high frequency feature. However, Manjunath does not teach using HH band for embedding coefficients of the watermark. Manjunath teaches using LL band exclusively. Therefore, Manjunath does not anticipate the instant claims.

2.3 Claims 2, has been rewritten in the independent form and is in condition for allowance.

3. In view of the reason presented herein, claims 1-10 are in condition for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Grigory Gurshman whose telephone number is (571)272-3803. The examiner can normally be reached on 9 AM-5:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571)272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Grigory Gurshman
Examiner
Art Unit 2132


GILBERTO BARRON JR.
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